

IN THE CLAIMS:

Amend claims 1 and 14 as shown in the following listing of claims, which replaces all previous listings and versions of claims.

1. (currently amended) A hydrodynamic bearing comprising:

a hollow member having a hollow portion provided with an opening portion at least one end thereof;

a rotating member including a rotating portion disposed inside said hollow portion so as to be rotatable relative to said hollow member, and a shaft portion extending through said opening portion and arranged concentrically with an axis of rotation of said rotating portion;

fluid interposed between said hollow member and said rotating member;

hydrodynamic pressure-producing means acting on said fluid between opposite surfaces of said hollow member and said rotating member to produce hydrodynamic pressure between said opposite surfaces; and

a seal portion formed on an inner surface side of said opening portion and acting to prevent leakage of the fluid;

wherein at least one of said rotating member and said hollow member is made of a stainless steel containing from 12 to 16 weight% chromium and from 6 to 10 weight% manganese; and

wherein at least one of the opposite surfaces of said rotating member and said hollow member has ~~undergone~~ been hardened to a surface hardness of 400 to 430HV by plastic deformation processing.

2. (previously presented) A hydrodynamic bearing according to claim 1; wherein the components of said stainless steel satisfy at least one of the following requirements: (a) containing 0.2 weight% carbon, (b) containing 2 weight% nickel, (c) containing 0.15 weight% sulfur, (d) containing 0.35 weight% silicon, and (e) containing less than 0.05 weight% phosphorus.

3. (previously presented) A hydrodynamic bearing according to claim 2; wherein the hydrodynamic pressure-producing means includes hydrodynamic pressure-producing grooves formed in at least one of a surface of said rotating member and an inner surface of said hollow portion, and wherein said hydrodynamic pressure-producing means produces hydrodynamic pressure because the hydrodynamic pressure-producing grooves pump the fluid when said rotating member is rotating.

4. (previously presented) A hydrodynamic bearing according to claim 1; wherein the hydrodynamic pressure-producing means includes hydrodynamic pressure-producing grooves formed in at least one of a surface of said rotating member and an inner surface of said hollow portion, and wherein said hydrodynamic pressure-producing means produces hydrodynamic pressure because the hydrodynamic pressure-producing grooves pump the fluid when said rotating member is rotating.

5. (previously presented) A hydrodynamic bearing according to claim 1; wherein said rotating portion is a disk member and said shaft portion is connected with a radial center of the disk member perpendicularly to a disk surface of the disk member.

6. (previously presented) A hydrodynamic bearing according to claim 2; wherein said rotating portion is a disk member and said shaft portion is connected with a radial center of the disk member perpendicularly to a disk surface of the disk member.

7. (previously presented) The hydrodynamic bearing according to claim 4; wherein said rotating portion is a disk member and said shaft portion is connected with a radial center of the disk member perpendicularly to a disk surface of the disk member.

8. (previously presented) A motor device comprising:

a hydrodynamic bearing according to claim 1;

a rotor connected with the shaft portion of said hydrodynamic bearing;

a stator connected with said hollow member and supporting said hydrodynamic bearing and said rotor; and driving means for rotating said rotor.

9. (previously presented) A motor device comprising:

a hydrodynamic bearing according to claim 2;

a rotor connected with the shaft portion of said hydrodynamic bearing;

a stator connected with said hollow member and supporting said hydrodynamic bearing and said rotor; and driving means for rotating said rotor.

10. (previously presented) A motor device comprising:

a hydrodynamic bearing according to claim 4;

a rotor connected with the shaft portion of said hydrodynamic bearing;

a stator connected with said hollow member and supporting said hydrodynamic bearing and said rotor; and driving means for rotating said rotor.

11. (previously presented) A motor device comprising:

a hydrodynamic bearing according to claim 5;

a rotor connected with the shaft portion of said hydrodynamic bearing;

a stator connected with said hollow member and supporting said hydrodynamic bearing and said rotor; and driving means for rotating said rotor.

12. (canceled)

13. (previously presented) A hydrodynamic bearing according to claim 1; wherein the plastic deformation processing is one of press working or roll pressing.

14. (currently amended) A hydrodynamic bearing comprising: a hollow member having opposed ends and a hollow interior portion that opens at one or both of the ends; a rotatable member disposed in the hollow interior portion to undergo rotation relative to the hollow member and having a shaft portion that extends through one open end of the hollow member; and a fluid disposed in the hollow interior portion between opposed surfaces of the hollow member and the rotatable member; wherein one or both of the hollow member and the rotatable member are made of a stainless steel whose surface undergoes plastic deformation and hardening when subjected to pressing, and wherein one or both of the hollow

member and the rotatable member that are made of the stainless steel have hydrodynamic pressure-producing grooves formed in the surface thereof that act on the fluid during rotation of the rotatable member relative to the hollow member to produce hydrodynamic pressure between opposed surfaces of the hollow member and the rotatable member, the hydrodynamic pressure producing grooves being formed by pressing the stainless steel surface to plastically deform the surface to form the grooves while press-hardening the surface to a surface hardness of 400-430HV.

15. (previously presented) A hydrodynamic bearing according to claim 14; wherein the stainless steel contains, in weight per cent, from 12 to 16% chromium and from 6 to 10% manganese.

16. (previously presented) A hydrodynamic bearing according to claim 15; wherein the stainless steel contains up to 2 weight% nickel.

17. (previously presented) A hydrodynamic bearing according to claim 16; wherein the rotatable member has a disk portion connected at its center to the shaft portion, the disk portion being made of the stainless steel and having hydrodynamic pressure-producing grooves press-formed in one or both opposed surfaces thereof.

18. (previously presented) A hydrodynamic bearing according to claim 17; wherein the shaft portion is made of the stainless steel and has hydrodynamic pressure-producing grooves press-formed in the surface thereof.

19. (previously presented) A hydrodynamic bearing according to claim 14; wherein the rotatable member has a disk portion connected at its center to the shaft portion, the disk portion being made of the stainless steel and having hydrodynamic pressure-producing grooves press-formed in one or both opposed surfaces thereof.

20. (previously presented) A hydrodynamic bearing according to claim 14; wherein the shaft portion is made of the stainless steel and has hydrodynamic pressure-producing grooves press-formed in the surface thereof.

21. (previously presented) A hydrodynamic bearing comprising: a hollow member having opposed ends and a hollow interior portion that opens at one or both of the ends; a rotatable member disposed in the hollow interior portion to undergo rotation relative to the hollow member and having a shaft portion that extends through one open end of the hollow member; and a fluid disposed in the hollow interior portion between opposed surfaces of the hollow member and the rotatable member; wherein one or both of the hollow member and the rotatable member are made of stainless steel and have

hydrodynamic pressure-producing grooves formed in the surface thereof that act on the fluid during rotation of the rotatable member relative to the hollow member to produce hydrodynamic pressure between opposed surfaces of the hollow member and the rotatable member, each surface that has hydrodynamic pressure-producing grooves formed therein having a martensite phase structure.

22. (previously presented) A hydrodynamic bearing according to claim 21; wherein the rotatable member has a disk portion connected at its center to the shaft portion, the disk portion being made of stainless steel and having in one or both opposed surfaces thereof hydrodynamic pressure-producing grooves.

23. (previously presented) A hydrodynamic bearing according to claim 22; wherein the shaft portion is made of stainless steel and has hydrodynamic pressure-producing grooves in the surface thereof.

24. (previously presented) A hydrodynamic bearing according to claim 21; wherein the shaft portion is made of stainless steel and has hydrodynamic pressure-producing grooves in the surface thereof.